ABSTRACT

A code division multiple access base station is used in receiving a plurality of data signals over a shared spectrum. Each received data signal experiences a similar channel response. A combined signal of the received data signals is received over the shared spectrum. The combined signal is sampled at a multiple of the chip rate. A channel response is estimated. A cross correlation matrix is determined using the estimated channel response. The spread data vector is determined using order recursions by determining a first spread data estimate using an element from the cross correlation matrix and recursively determining further estimates using additional elements of the cross correlation matrix. Data of the data signals is estimated using the spread data vector.